

**TGG-N PhD projects:**

## **Operationalizing global production network theory: the case of medicinal plants from Nepal**

*Dipesh Pyakurel*

Global Production Network theory is applied to the case of medicinal plants traded from Nepal to India and China. Data was collected in six districts in the mid- and far-western development regions of Nepal and throughout the production networks, from harvesters and local traders to central and regional wholesalers. Both quantitative and qualitative interviews were used; the former to quantify values and volumes, the latter to operationalize global production network theory in relation to commercial medicinal plants. Analyses include benefit distribution across actors and network governance, though understanding of value, power, embeddedness, and relational proximity.

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## **Consumption of medicinal plant products from the central Himalaya**

*Gandhiv Kafle*

Medicinal plants have been traded for millennia: thousands of tonnes of raw materials are harvested in Nepal and exported to mainly India and China. Yet, end consumer products remain unknown as does, therefore, the factors driving demand. This knowledge is important because it can allow insights into future demand and associated issues such as the likely sustainability of future trade. This study identifies the most important processed end products for selected commercial medicinal plant species using market research, and identifies consumption determinants using a consumer survey.

## **Population ecology and the sustainability of *Aconitum spicatum*, *Allium wallichii*, and *Dactylorhiza hatagirea* harvesting in the central Himalaya**

*Deep Jyoti Chapagain*

The objective is to develop a sustainable management models for the commercially harvested medicinal plant species *Aconitum spicatum*, *Allium wallichii*, and *Dactylorhiza hatagirea* (the latter banned by the government for collection). The data core is a network of permanent plots established in alpine areas of central (Annapurna Conservation Area) and western (Apinampa Conservation Area) Nepal. A long term study (2015-2018) is carried out to assess the effect of different harvesting regimes on the life history traits and productivity of the selected species along an elevation gradient from 3000 to 4600 masl. Stratified random sampling was used to collect annual data on key demographic population properties and environmental factors.

Simulation models are used to determine life history stages and population recovery time across varying harvesting intensities. The project integrates population model findings with local ecological knowledge to identify sustainable management guidelines.

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## **Population ecology and the sustainability of *Neopicrorhiza scrophulariiflora* and *Meconopsis napaulensis* harvesting in the central Himalaya**

*Mukti Ram Poudeyal*

The objective is to develop sustainable management models for the commercially threatened *Neopicrorhiza scrophulariiflora* and the rare and endemic *Meconopsis napaulensis*. The data core is a network of permanent plots established in alpine areas of central and western Nepal. Key demographic population properties and environmental factors are subject to annual measurements. The study also estimates the effects of harvesting pressures on plant demography and regeneration along environmental gradients, as well as optimal harvest levels to identify sustainable management guidelines.